

CLAIMS

1. A substrate for a protein array, comprising a substrate to which a polymer compound having a primary amino group in a repeating structure is bound.

2. The substrate for a protein array according to claim 1, wherein the substrate to which the polymer compound having a primary amino group in a repeating structure is bound has water absorbability.

3. The substrate for a protein array according to any one of claims 1 to 3, wherein the polymer compound having a primary amino group in a repeating structure is polyallylamine.

4. The substrate for a protein array according to any one of claims 1 to 3, wherein the polymer compound having a primary amino group in a repeating structure is polylysine.

5. A protein array comprising a protein represented by formula (I) aligned and immobilized on the substrate for a protein array according to any one of claims 1 to 4 so that the carboxyl terminal of the protein main chain represented by formula (I) is immobilized by a peptide bond to the primary amino group of the polymer compound bound to the substrate:



wherein R₁ represents any amino acid sequence.

6. A protein array comprising a protein represented by formula (IV) aligned and adsorbed on the substrate for a protein array according to any one of claims 1 to 4 so that the protein represented by the above formula (IV) is immobilized in an adsorbed state:



wherein R_1 represents any amino acid sequence; and R_2 represents an amino acid sequence which is negatively-charged strongly at around neutral and is capable of acidifying the isoelectric point of the protein represented by the above formula (IV).

7. The protein array according to claim 5 or 6, wherein the protein to be immobilized has an amino acid sequence of a linker peptide.

8. A process for producing a protein array comprising a protein represented by formula (I) aligned and immobilized on the substrate for a protein array according to any one of claims 1 to 4:



wherein R_1 represents any amino acid sequence,

said method comprising reacting a protein represented by formula (II):



wherein R_1 represents any amino acid sequence; and R_2 represents an amino acid sequence which is negatively-charged strongly at around neutral and is capable of acidifying the isoelectric point of the protein represented by the above formula (II),

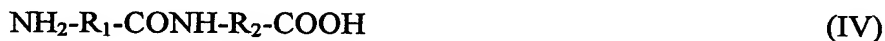
with a polymer compound on the substrate for a protein array to thereby bind the carboxyl terminal of the protein main chain of formula (II) to a primary amino group of the polymer compound by a peptide bond.

9. The process for producing a protein array according to claim 8, wherein the protein represented by formula (II) is formed by aligning and adsorbing a protein represented by formula (III):



wherein R_1 represents any amino acid sequence; and R_2 represents an amino acid sequence which is negatively-charged strongly at around neutral and is capable of acidifying the isoelectric point of the protein represented by the above formula (III),
on a substrate for a protein array, followed by reaction with a cyanation reagent.

10. A process for producing a protein array, which comprises aligning and adsorbing a protein represented by formula (IV):



wherein R_1 represents any amino acid sequence; and R_2 represents an amino acid sequence which is negatively-charged strongly at around neutral and is capable of acidifying the isoelectric point of the protein represented by the above formula (IV),

on the substrate for a protein array according to any one of claims 1 to 4 to thereby immobilize the protein in an adsorbed state.

11. The process for producing a protein array according to any one of claims 8 to 10, wherein the protein to be immobilized has an amino acid sequence of a linker peptide.

12. The process for producing a protein array according to any one of claims 8 to 11, wherein a means for aligning the protein on the substrate for a protein array is a microcapillary or a needle-like article.

13. The process for producing a protein array according to any one of claims 8 to 11, wherein a means for aligning the protein on the substrate for a protein array is an ink-jet process.